



Warm Up Grade 8

1) Jim and Karen are competing for first place in their grade 8 class. Karen receives 23.5 out of 25 on her math test and Jim receives 29.5 out of 32/

Who received the higher mark?

$$\text{Karen } \frac{23.5}{25}$$

Can do on a calculator

$$23.5 \div 25 = 0.94$$

$$= 94\%$$

$$\text{Jim } \frac{29.5}{32}$$

on calculator

$$29.5 \div 32 = 0.92$$

$$= 92\%$$

Karen made the highest

2) The cost to make a pen is \$0.15. The company sells the pen for 450% of its cost to make. How much profit do they make off of 1 pen?

$$\begin{array}{l} 450\% \text{ of cost} = \text{Selling} \\ \downarrow \quad \times 0.15 = \text{Sell} \\ 0.675 \quad = \text{Sell} \end{array}$$

Sell the pen for about \$0.68



3) 26% of a number is 93.6, what is that number?

$$\begin{array}{l} 26\% \text{ of } n = 93.6 \\ 0.26 \times n = 93.6 \\ \frac{0.26 \times n}{0.26} = \frac{93.6}{0.26} \\ n = 360 \end{array}$$

$$n = 360$$

$$\begin{array}{l}
 50\% \text{ of } n = 15 \\
 \downarrow \times 2 \qquad \qquad \downarrow \times 2 \\
 100\% \text{ of } n = 30 \\
 \boxed{n = 30}
 \end{array}$$

$$\begin{array}{l}
 5\% \quad \times 20 \\
 10\% \quad \times 10 \\
 20\% \quad \times 5 \\
 25\% \quad \times 4 \\
 50\% \quad \times 2
 \end{array}$$

b) Mental

$$\begin{array}{l}
 75\% \text{ of } n = 12 \\
 \div 3 \qquad \qquad \div 3 \text{ OR}
 \end{array}$$

$$\begin{array}{l}
 25\% \text{ of } n = 4 \\
 \times 4 \qquad \qquad \times 4
 \end{array}$$

$$100\% \text{ of } \boxed{n = 16}$$

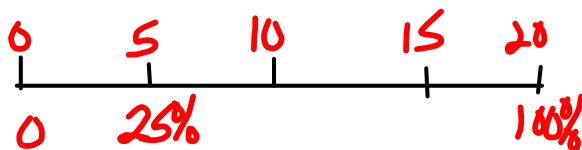
Algebra

$$0.75n = 12$$

$$\frac{0.75n}{0.75} = \frac{12}{0.75}$$

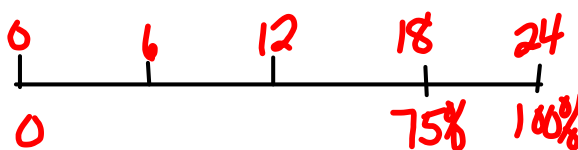
$$n = 16$$

4a) 25% of a number is 5



$$\begin{aligned} 25\% \text{ of } _ &= 5 \\ \downarrow \times 4 & \\ 100\% \text{ of } _ &= 20 \end{aligned}$$

b) 75% of a number is 18



$$\begin{aligned} 75\% \text{ of } _ &= 18 \\ 25\% \text{ of } _ &= 18 \div 3 \\ &= 6 \\ 100\% \text{ of } _ &= 6 \times 4 \\ &= 24 \end{aligned}$$

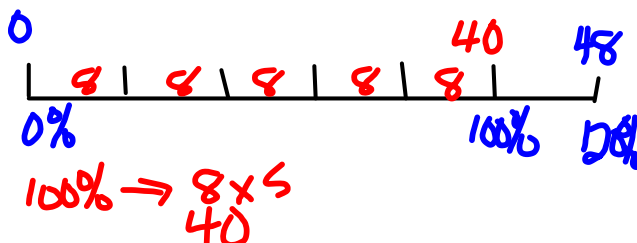
$$\begin{aligned} 0.75 \times h &= 18 \\ \frac{0.75h}{0.75} &= \frac{18}{0.75} \\ &= 24 \end{aligned}$$

c) 4% of a number is 32

$$\begin{aligned} 0.04 \times h &= 32 \\ \frac{0.04h}{0.04} &= \frac{32}{0.04} \\ h &= 800 \end{aligned}$$

$$\begin{aligned} 4\% \text{ of } _ &= 32 \\ 1\% \text{ of } _ &= 32 \div 4 \\ &= 8 \\ 100\% \text{ of } _ &= 8 \times 100 \\ &= 800 \end{aligned}$$

d) 120% of a number is 48



$$\begin{aligned} 1.2 \times h &= 48 \\ \frac{1.2h}{1.2} &= \frac{48}{1.2} \\ h &= 40 \end{aligned}$$

7. a) 15% is 125g

$$15\% \text{ of } n = 125$$

$$0.15n = 125$$

$$\frac{0.15n}{0.15} = \frac{125}{0.15}$$

$$n = 833.3$$

b) 9% of — is 45

1% of — is 5

100% of — is 5×100
500

number is 500

$$0.09n = 45$$

$$\frac{0.09n}{0.09} = \frac{45}{0.09}$$

$$n =$$

c) 0.8% of — is 12

$$0.008n = 12$$

$$\frac{0.008n}{0.008} = \frac{12}{0.008}$$

$$n = 1500$$

10. 2001 \rightarrow 12% less miners

12% of miners in 1986

12% of 193 000

$$0.12 \times 193\,000$$

23 160 \rightarrow fewer miners

So in 2001

$$193\,000 - 23\,160$$

169 840 miners in 2001

12. Jemma

Week 1 15% of 1.5

Increase 0.15×1.5

$$0.225$$

Mass after week 1 $\rightarrow 1.5 + 0.225$
1.725

Week 2 15% of 1.725

Increase 0.15×1.725

$$0.25875$$

Jemma's
Mass - Week 2 $1.725 + 0.25875$
1.98375 kg

George

30% increase

in 2 weeks

30% of 1.5

$$= 0.3 \times 1.5$$

$$= 0.45$$

Total mass $1.5 + 0.45$
1.95 kg

Finding the Percent Increase or Percent Decrease

Study

$$\% \text{ Diff} = \left(\frac{\text{Big - Small}}{\text{Difference}} \right) \times 100$$

Original

***** Important

Percent Increase = $\frac{\text{Amount of Increase}}{\text{Original Amount}} \times 100\%$ (Amount of Increase = New Price - Original Price)

Percent Decrease = $\frac{\text{Amount of Decrease}}{\text{Original Amount}} \times 100\%$ (Amount of Decrease = Original Price - New Price)

$$\frac{\text{Diff}}{\text{Original}} \times 100 \%$$

Example 4

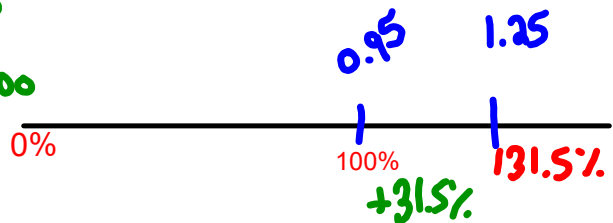
(a) The price of a carton of milk in the school cafeteria increased from \$0.95 to \$1.25. What was the percent increase in price?

(b) The price of a green salad decreased from \$2.50 to \$1.95. What was the percent decrease in price?

solution

(a) Amount of Increase = $\frac{\text{Diff}}{\text{Original}} = 1.25 - 0.95 = 0.30$

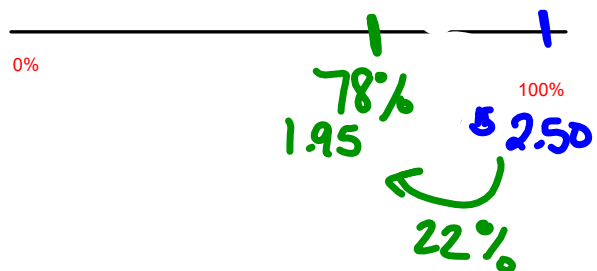
Percent Increase = $\frac{\text{Diff}}{\text{Original}} \times 100 \%$
 $= \frac{0.30}{0.95} \times 100$
 $= 0.315879 \times 100$
 $\approx 31.5 \%$



(b) Amount of decrease = $\text{Big} - \text{Small} = 2.50 - 1.95 = 0.55$

Percent Decrease = $\frac{\text{Diff}}{\text{orig}} \times 100$
 $= \frac{0.55}{2.50} \times 100$

$= 0.22 \times 100 = 22 \%$



Class / Homework

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~~10~~, # ~~11~~, # ~~12~~, # ~~15~~, 

5 ab.

6 ab

7 a

9 b

10

BOBCN